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Operation ABSOLUTE AGILITY 2

Corporal Hernandez halted his squad on the near side of a road intersection, the same road that they had patrolled a dozen times in as many days. He took a second to remember the stories his father had told him about the elder's experiences in Tugala the still war torn capital city of the central African nation of Orange. "I wonder if anything has changed in the past 26 years since dad was here in 1999? Not much, I imagine," thought Hernandez. The government of Orange was in shambles, essential services were not reaching the people, drought had destroyed the country's crops for two years running, and clan violence caused the death of thousands and prevented aid from reaching the needy. The Marine Expeditionary Unit had landed two weeks ago to enable U.S. provided aid to reach the Organian people with the intent of bringing stability to the country. Stability of course was counter to the objectives of the warlords who were exploiting the current situation to build their own power. In fact, the clans had started attacking relief organizations in the zones belonging to international forces but to date had not hit the U.S. Marines.

Corporal Hernandez's squad reached its objective of the district market place where it was to provide security for a food distribution point. He set his squad in position and gave the phasersmen there weapon settings: "1st fire team establish close security at the distribution point, weapons on repel; 2nd fire team take a position to overwatch the distribution point, weapons on incapacitate; 3rd fire team occupy that rooftop oriented down the road, the most likely avenue of approach for clan forces, weapons on kill." For the first hour the distribution went well, but then several unarmed young males entered the waiting crowd and began shouting anti-American slogans. The crowd, now agitated, closed on the distribution point and the agitators flung several rocks at the Marines. Corporal Hernandez's response was immediate, bringing to bear his demanding MEU pre-deployment training, his honed decision-making, and the tools at hand. "1st fire team fire on the crowd, 2nd fire team take out the rock throwers!" The Marines opened fire. As expected, the crowd, feeling the heat effect from the 1st team's weapons, withdrew while the youths were knocked down by an invisible force. The Marines quickly apprehended the rock throwers and immediately re-opened the distribution point to the appreciative crowd who had recovered from the temporary effects of the Marines' weapons. "Bet dad would be impressed...probably jealous, too."

Just as Corporal Hernandez had taken this moment to relax his 3rd fire team reported, "Two pick-up trucks coming down the road, six men per truck carrying small arms, each truck has a mounted crew served weapon, over." The local clan was obviously intent on disrupting the food distribution. "Roger. 3rd team, stop the trucks and let's check their reaction. 2nd team, re-orient on the road. 1st team, inform the crowd that we will recommence with food distribution once the threat is gone. Be prepared to reinforce 2nd team. Over." Hernandez now saw the approaching trucks but immediately they sputtered to a stop about 500 meters away. "What did Marines ever do before being able to disrupt an internal combustion engine." Hernandez could see the men climb out of the trucks, milling about and trying to get the trucks started. At that moment the apparent leader of the group began running down the street toward the Marines, stopping only long enough to fire a couple of shots at the Marine position. "3rd team, take out the leader. Over" The words had barely left Hernandez's mouth when he saw the lead clansman topple over. The other men stopped momentarily to look at the body of their leader. "3rd team, switch to incapacitate! Fire!" The clansmen began toppling over. "2nd team, advance and take

those men captive. 1st team, overwatch 2nd.” Within thirty minutes, the Marine squad had everything under control, even before the company reaction force arrived on the scene.

Hernandez’s platoon commander questioned him about why he didn’t kill all of the aggressors as it would have been well within the rules of engagement to do so. “I didn’t really think about it at the time, Sir, but remember that ancient Small Wars Manual you had us read, it talked about using minimal force to achieve greater effect. I figured that once we had killed the leader as an example, the rest of those guys were more valuable to us alive. Think about the intel we can get and not to mention the prevention of family revenge attacks on us for killing those men. One other thing, that reporter who came out with the food convoy broadcasted the whole situation live via satellite.” After the squad was congratulated by the platoon commander and company commander for a textbook operation, they returned to their billets to conduct their own after action review and to get some rest. Corporal Hernandez wondered what tomorrow would bring, but he knew that he had the Marines and tools to handle it.

Introduction

This vignette is a sequel to the scenario presented in General Charles C. Krulak’s 1999 article, “Strategic Corporal: Leadership in the Three Block War.”¹ Updated to 2025, Operation ABSOLUTE AGILITY 2 represents a possible future. Central to the Marine Corps’ concept of future war, as he has been for over 231 years, is the individual Marine- arguably the most important “weapon system” on the battlefield. The expectations placed on the individual Marine, defined for this paper as the infantry Marine, will continue to increase as will the individual Marine’s influence on the tactical, operational, and strategic situation. This idea animated General Krulak’s concept of the “Strategic Corporal” but the Marine Corps has yet to provide the individual Marine the tools to fully enable him to meet the demands of future war.

In the case of Operation ABSOLUTE AGILITY 2, the tools available to the Marine squad enable the mindset that will engender success in the variety of conflicts they will likely face. Central among these tools is a directed energy personal weapon with both lethal and non-lethal capabilities, the idea of which has long captivated the imaginations of the general population and warfighters alike. A hand-held and universally effective directed energy weapon

¹ General Charles C. Krulak, "The Strategic Corporal: Leadership in the Three Block War," http://www.au.af.mil/au/awc/awcgate/usmc/strategic_corporal.htm (23 October 2006)

with a range at least comparable to traditional small arms that can be easily transitioned between a non-lethal and lethal capability is the “Holy Grail” for those who work in the development of non-lethal weapons, according to Colonel David Karcher, former director of the Joint Non-Lethal Weapons Directorate. Yet while directed energy weapons have the potential to fully enable the strategic corporal, two hurdles must be overcome before these weapons can be fully realized: public acceptance and institutional acceptance.

Future Warfare: The Possible Before discussing the requirements for and effects of future weapons, it is necessary to bring into focus the possible future warfighting environment. Wendell Bell, a noted futurologist, identifies that it is only possible to predict a range of possible futures based on present indications.² Following this line of logic there are assumptions that may be made regarding the future of warfare during the next 20 years. First among these assumptions is that the nature of war, and its compositional elements of clash of wills, friction, uncertainty, and violence, will remain unchanged for the foreseeable future. Simply said the nature of war is immutable or unchanging and therefore provides the backdrop for future war. On the other hand, the character of war will continually evolve and change to meet the conditions of the day (see Annex A-Spectrum of Conflict). It is these changes in the character of war that should most concern the present-day warfighter preparing for the future.

The National Security Strategy of the United States of America begins to define the possible environment for future war as it states that “America is now threatened less by

² Bell, Wendell, Foundations of Futures Studies: Human Science for a New Era. (New Brunswick, NJ: Transaction Publishers, 2000), 49-50.

conquering states than we are by failing ones.”³ The National Defense Strategy further refines the anticipated security environment that the United States will face. “Uncertainty is the defining characteristic of today’s strategic environment. We can identify trends but cannot predict specific events with precision.”⁴ Combined, these two documents paint a picture of a world where stable nation-states are challenged by violence in the form of insurgencies, clan or ethnic clashes, and extreme ideologies that are born in areas of instability but spread without regard for national boundaries. In countering these security threats, the Marine Corps Operating Concepts for a Changing Security Environment predicts that the Marine Corps will participate in a range of operations that include stability and support operations, small wars, combating terrorism, and combating drug trafficking, all of which fall into threat methodology defined by the National Defense Strategy as irregular, catastrophic, and disruptive.⁵ This is not to say that the threat of traditional war between nation-states does not exist but rather that it is less likely to occur within the 10 to 15 year time horizon which the document covers. While this discussion only scratches the surface of the future security environment, for the purposes of this paper it should become clear that future war will be complex and multidimensional, and include variation of operations including peacekeeping and full-scale combat.

Future war will be further defined by limitations on the use of force. In modern warfare there have been accepted principles and restraints on the use of force such as the type of force, the target of that force, and the subsequent effects achieved from the use of force. While not a

³ George W. Bush, *The National Security Strategy of the United States of America*, (Washington, DC: The White House, September 17, 2002), 1.

⁴ Donald H. Rumsfeld, *The National Defense Strategy of the United States of America*, (Washington, DC: Department of Defense, March 1, 2005), 2.

⁵ *Marine Corps Operating Concepts for a Changing Security Environment*, (Quantico, VA: Marine Corps Warfighting Lab, March 2006), 9.

new concept, what has changed in the past 60 years is the divergence from the level of force available to a nation-state and type of force that may be effectively employed. This principle is exemplified by the comparison of once accepted inaccuracies of unguided, aerial bombs to the expectations of modern precision-guided munitions. While presented here in terms of the precision of the force of the weapon, in reality it is the precision of the effect that is of greater concern. In other words, when discussing use of force one should focus on how the force is used to accomplish the desired purpose and whether a weapon system sufficiently discriminates to the desired effect without undesired collateral damage.⁶

The increasing expectation of precision and discrimination of effect in national and international consciousnesses can be expected to grow and influence the future warfighting environment, thus narrowing the funnel of possible choices for the use of kinetic force by nation states such as the United States. Traditional military minds may view such limitations as unproductive. However, when these limitations are placed in the context of the types of conflict as described in the National Security Strategy (NSS) and the Marine Corps Operating Concepts for a Changing Security Environment, the resulting precise, scalable, *adaptable* use of force can greatly aid military forces in achieving success. Again the concept of limitations to the use of force, and its role in successfully fighting non-traditional war, is not new and was in fact discussed in the Marine Corps' 1940 *Small Wars Manual* and has been reemphasized in the

⁶ The law of war principle of military necessity proposes that only valid military objectives may be attacked. Additionally, the principle of proportionality states that the anticipated loss of civilian life and damage to civilian property incidental to attacks on targets of military necessity must not be excessive in relation to the concrete and direct military advantage gained. Collateral damage is defined as the unintended loss of civilian life and damage to civilian property that results from an attack on a valid and necessary military target. Anonymous, "Basic Principles of the Law of War," Marine Corps Gazette, October 2002, 36-37.

newest edition of FM 3-24/MCRP 3-33.5 *Counterinsurgency* which identifies that the “more force [soldiers or Marines] use, the less effective [they] are.”⁷

Another aspect of the character of future war is the idea of employment of military forces in a manner that secures a self-sustaining, stable peace. In other words, it is not adequate for the United States military to only “win the nation’s battles”, but they must win the nation’s battles in such a manner that secures the subsequent peace. Again this idea is not new in warfare, but the United States’ experiences in Iraq from 2003 to present have served to crystallize it in the minds of military decision makers. Of critical importance to securing the post-hostilities peace, which may be defined as the “end,” are the ways and means employed to achieve the desired end. This is to say that the means employed during the war will dictate whether the following peace is suitable or not. A key principle of winning small wars, stability and security operations, and other irregular forms of war in which the United States will certainly find itself engaged, is that killing insurgents or criminals is the least preferred action for military forces. In these types of warfare a premium is also placed on capturing opposing elements so that they may be exploited for their intelligence value. In this brief discussion of irregular warfare, the “end” remains securing a suitable peace, but the ways and the means require judicious use of force as the key to success. Extrapolated to include the entire spectrum of warfare from traditional war to irregular war, the idea of correct selection of the means to achieve the desired ends indicates the need for adaptable use of force.

In summary, future war will possess the immutable nature of wars past and present while continuing to evolve in character. While it is possible that the United States may engage in traditional war versus a near-peer nation-state in the next 20 years, it is more likely that U.S.

⁷ U.S. Department of the Army, FM 3-24/MCRP 3-33.5 *Counterinsurgency*, (Washington, D.C.: U.S. Government Printing Office, 2006), 1-14.

forces will engage in irregular, disruptive, or catastrophic conflict. Two specific characteristics of future war inform the discussion of the type forces and weapons required for success: the growing expectation of precise use of force and the requirement for military forces to set the conditions for a sustainable peace through employment of correct means. With this perspective on future war, albeit limited, it is possible to proceed to a discussion of the military forces required to successfully meet future challenges.

The Force

As stated earlier, arguably the individual infantry Marine personified by the “strategic corporal” is the most important weapon on the battlefield. This is most certainly the case in the context of the likely future warfighting environment. The demands placed on the strategic corporal will continue to grow as he is expected to prepare for operations across the spectrum of conflict. These demands will place a premium on adaptability.⁸

The strategic corporal must first and foremost be adaptable of mind, able to reason solutions to unanticipated contexts. Such adaptability is built “through education, the development of character, and through reflective accumulation of long-term experiences.”⁹ Adaptability of mind is also gained through situational understanding. The better the strategic corporal understands the operation in which he is engaged, the better he will be able to adapt his “means” to achieve the end. He must also be able to adapt the traditional warrior mentality to encompass what may be termed a “police mentality” and the use of precise, minimal, and adaptable force this mentality represents. Yet the “warrior” must have the necessary weapons to

⁸ U.S. Department of the Army, FM 3-24/MCRP 3-33.5 Counterinsurgency, (Washington, D.C.: U.S. Government Printing Office, 2006), 7-5.

⁹ Ibid, 7-5.

meet the wide range of violence they can expect to face. Only when properly equipped will they have the confidence to use only the minimal force necessary.

Directed Energy: Enabling the Strategic Corporal

As we enter the twenty-first century we find ourselves on the verge of a new breakthrough in warfare with the application of Directed Energy technology to the battlefield... We are in an era in which precision and the lack of collateral damage are determinants in the acceptability of weapons. Directed Energy weapons with their ability to generate both lethal and non-lethal effects at the speed of light will gain greater acceptance. The nation with the vision to embrace these weapons will dominate the battlefield for the foreseeable future.¹⁰

Directed energy weapons may conjure images of *Star Trek*, but in reality there is widespread use of the electromagnetic spectrum and directed energy even on the present battlefield. Radios used for command and control are obvious sources of electromagnetic radiation but other commonly overlooked sources include electrical power generation devices, ignition systems on internal combustion engines, computer systems on tanks and aircraft, visible and infrared light sources, radar, and targeting lasers.¹¹ With these uses in mind, one can easily see that the electromagnetic spectrum will be central to the American way of war for the foreseeable future, and therefore the need to secure it for American use is a critical requirement. The idea of weaponizing the electromagnetic spectrum is also neither new in theory nor in practice. The jamming of radio frequencies is one of the earliest examples of an electromagnetic weapon while more recent weapons include high-energy lasers, Active Denial Technology, and optical distractors. In short, directed energy weapons focus and intensify emissions from one area of the electromagnetic spectrum to achieve a military significant effect. Today's directed

¹⁰ Duffner, et al, "Directed Energy: The Wave of the Future." The Limitless Sky: Air Force Science and Technology Contributions to the Nation

¹¹ Interview with Colonel David Karcher (25 October 2006).

energy efforts are primarily focused on lasers, millimeter waves, and microwaves.¹² Given the reliance of the United States on the electromagnetic spectrum and the real feasibility to further the development of electromagnetic weapons, one reaches the logical conclusion that America's military must seek to dominate the electromagnetic spectrum.¹³ Such thoughts serve as a starting point for a general discussion of directed energy weapons, but the primary focus of this paper is how directed energy can enable the strategic corporal or infantryman of the future.

For the foreseeable future Marines will engage in operations across the spectrum of conflict from more likely irregular conflict to the less likely traditional war. Furthermore, growing expectations of precise and discriminating force will pose substantial limits on the use of kinetic force as will the recognition that use of kinetic force is often detrimental to success in irregular conflicts. Marines must therefore be adaptable in both mind and action so that they can employ the necessary means to achieve the desired end of a sustainable post-conflict peace. An adaptable mind, while the most important asset to the infantry Marine, will not fully allow the infantryman to meet the challenges of the future warfighting environment unless he is equipped with equally adaptable tools.

Compared to kinetic energy weapons such as rifles, machineguns, and artillery, directed energy weapons offer such adaptable tools. First consider that kinetic weapons are not adaptable in effect or function and are in fact limited by their design. For example, a rifle, such as the M16 service rifle, is designed primarily to do one thing: fire a 5.56mm projectile. The rifleman can vary the use of his rifle only slightly by choosing to fire or not, choosing his target, or perhaps using the rifle as a club or pike. Essentially, there is a large spectrum of force that lies between

¹² Doug Beason, The E-Bomb (Cambridge, MA: Da Capo Press, 2005), 214.

¹³ Col David Karcher, Interview 25 October 2006.

yelling and killing that is unavailable to the rifleman armed with a kinetic weapon such as a rifle. Recent attempts at bridging this gap with non-lethal weapons have not been very successful due to lack of seamless integration into the Marine's tools for escalation of force. Additionally, the mindset and training of the individual Marine has not fully incorporated the use of non-lethal means into the "warrior mentality." Directed energy weapons offer a potential solution that could provide the infantry Marine with an adaptable tool to enable his adaptable mind.

Directed energy weapons offer adaptability in both effect and function. For example, it is feasible that the effects of a directed energy weapon could be "dialed" from non-lethal to lethal force, thereby providing gradations of force the infantry Marine could easily adapt to the demands of a changing situation.¹⁴ Additionally, it is also possible that a single directed energy weapon system could be switched in function from an anti-personnel weapon to one that could disrupt electric devices such as radios, computers, or internal combustion engines.¹⁵ Lastly, directed energy weapons offer other desirable features such as "deep" magazines, which could potentially reduce logistic requirements for the infantry Marine, and the ability to engage targets literally at the speed of light.

Directed energy weapons offer great potential for arming the future infantry Marine with an adaptable weapon that will in turn enable the Marine himself to be fully adaptable in his thinking. While the day of fielding a hand-held directed energy weapon to the infantry Marine is years away, there are two major hurdles that must be overcome today before such a weapon can be fully realized. First, a public debate must occur to present the merits of such weapons and preempt those who might want to derail their fielding, thus winning the battle of public

¹⁴ Col David Karcher, Interview 25 October 2006.

¹⁵ Col David Karcher, Interview 25 October 2006.

perception. Second, commanders and Marines at all levels must be convinced of not only the utility of directed energy but also of the need for graduated use of force

The Battle of Public Perception

The crowd is getting ugly. Soldiers roll up in a Hummer. Suddenly, the whole right half of your body is screaming in agony. You feel like you've been dipped in molten lava. You almost faint from shock and pain, but instead you stumble backwards -- and then start running. To your surprise, everyone else is running too. In a few seconds, the street is completely empty. You've just been hit with a new nonlethal weapon that has been certified for use in Iraq – even though critics argue there may be unforeseen effects.¹⁶

Concerns over public perception initially seem out of place in a discussion of military weapons until one considers the influence of public opinion on warfighting. For this paper, the public includes the domestic population, international elements, and U.S. political decision makers. By shaping the opinions of these groups, a military force lays an important foundation for success on the battlefield.¹⁷ However, public support for a conflict is fickle and can be eroded from within or by enemy action. Therefore, the public must understand the “correctness” of the military means employed, including the employment of new and different types of weapons. This understanding is essential in order to minimize internal opposition while simultaneously protecting the public support base from attack by the enemy’s information operations. Informing and educating the public about the basic truths regarding directed energy weapons is the first critical step to achieving an adequate level of public acceptability and support.

The first element of shaping perception regarding directed energy weapons centers around what the weapons are and are not, or in other words establishing the “ground truth” of

¹⁶ David Hambling, “Say Hello to the Goodbye Weapon”, Wired News, 05 December 2006, (<http://www.wired.com/news/technology/0,72134-0.html>).

¹⁷ Interview with Ms Susan LeVine (24 October 2006)

this new technology. Relating directed energy weapons to the more familiar kinetic weapons provides a logical starting point for this discussion. Anthony Fessler, in his book *Directed Energy Weapons: A Judicial Review*, states that the bottom line determiner for a weapon's acceptability is whether that weapon causes an erosion of accepted norms for warfare. If so it is likely to be rejected.¹⁸ By using traditional weapons as the starting point for a discussion of directed energy weapons, one can show that directed energy will not cause such a deterioration in traditional values. Specifically, the armed forces must address whether directed energy weapons can achieve lethal effects with a "projected equivalency" to kinetic weapons.¹⁹ Additionally, the potential for directed energy weapons to be employed to cause unnecessary suffering must be addressed. Emphasis in this case should be placed on directed energy's potential for reducing human suffering through precision and scalability of effect, a claim that cannot be made for kinetic weapons, and the fact that "legal" kinetic weapons may also be misused for "illegal" purposes. In establishing the basic truths regarding directed energy weapons, scientific research involved in developing and testing the directed energy weapons should also be emphasized. While normally such information might be restricted for operational security reasons, as directed energy weapons are new and may be misunderstood it is necessary to publish scientific data to media outlets and in peer review journals in order to build credibility and acceptance.²⁰

¹⁸ "The criteria for a weapon to meet the test of lawfulness may be summarized by stating that it must not cause a destruction of values disproportionate to the military advantage gained through its use." Fessler, 83.

¹⁹ Major Joshua Kastenburger, "Directed Energy Weapons: Legal and Policy Considerations," Presentation to the University of Virginia Law School, 19-20 July 2006.

²⁰ Interview with Ms Susan LeVine (24 October 2006)

In addition to basic and accurate information regarding direct energy weapons in its public information and education campaign, the U.S. military should place particular emphasis on the legality of such weapons. The United States subjects all weapon systems to a legal and treaty review to ensure that the weapon, its components, and its intended use abide by the laws of the United States, customary international law, and international treaties to which the United States is a party.²¹ Such reviews focus on two principle concepts of the law of war: discrimination and unnecessary suffering. Discrimination relates to whether a weapon system distinguishes between lawful combatant targets and noncombatant targets such as civilians, civilian property, POWs, and wounded personnel who are out of combat. The principle of humanity or unnecessary suffering prohibits the infliction of suffering, injury or destruction that is not actually necessary to accomplish legitimate military purposes. This principle prohibits the use of arms, projectiles, or material designed to cause unnecessary suffering or unnecessary destruction of property.²² As a nation governed by the rule of law, such reviews must be used in

²²The Law of Armed Conflict (LOAC) has four central principles: distinction, proportionality, military necessity, and humanity or unnecessary suffering. Distinction means discriminating between lawful combatant targets and noncombatant targets such as civilians, civilian property, POWs, and wounded personnel who are out of combat. The central idea of distinction is to only engage valid military targets. An indiscriminate attack is one that strikes military objectives and civilians or civilian objects without distinction. Proportionality prohibits the use of any kind or degree of force that exceeds that needed to accomplish the military objective. Proportionality compares the military advantage gained to the harm inflicted while gaining this advantage. Proportionality requires a balancing test between the concrete and direct military advantage anticipated by attacking a legitimate military target and the expected incidental civilian injury or damage. Under this balancing test, excessive incidental losses are prohibited. Proportionality seeks to prevent an attack in situations where civilian casualties would clearly outweigh military gains. This principle encourages combat forces to minimize collateral damage—the incidental, unintended destruction that occurs as a result of a lawful attack against a legitimate military target. Military necessity requires combat forces to engage in only those acts necessary to accomplish a legitimate military objective. Attacks shall be limited strictly to military objectives. In applying military necessity to targeting, the rule generally means the United States Military may target those facilities, equipment, and forces which, if destroyed, would lead as quickly as

the public debate to demonstrate to the United States' public the adherence of directed energy weapons to legal and treaty obligations. Furthermore, these legal reviews form the basis of any international debate that may occur. In summary, proactive education of the public, including the domestic population, international publics, and governmental decision makers, is necessary to lay the foundation for effective development and employment of directed energy weapons.

The current debate surrounding the DoD's Active Denial System (ADS) illustrates the importance of winning the battle of public perception. The Active Denial System is a non-lethal counter-personnel directed energy weapon that projects a focused beam of millimeter waves which creates an intense heating sensation that rapidly repels an adversary without causing injury. Currently, ADS is the most prevalent subject of directed energy weapon news stories because it is the furthest along in terms of development and is the most likely to deploy within the next few years. The 24-hour news cycle and the internet's vast variety of "news" forums has posed a particular problem for public affairs personnel who are trying to provide accurate and timely information to the public regarding ADS. While ADS has undergone more than 12 years of research and studies and more than 10,000 exposures on volunteers have proven that there is a less than 1/10th of 1 percent chance of injury associated with ADS exposure, misinformation about ADS still exists in the mainstream media and on the internet. The Sunshine Project, a long-time adversary of most non-lethal weapons and non-kinetic systems of any type, is an example of a domestic group who exploits misinformation for its own agenda. This group presents information in a controversial format and context and is adept at using the news media

possible to the enemy's partial or complete submission. Finally, humanity or unnecessary suffering prohibits the use of arms, projectiles, or material designed to inflict unnecessary suffering to persons or unnecessary damage to property. Anonymous, "Basic Principles of the Law of War", Marine Corps Gazette, October 2002, 36-37.

and other organizations such as People for the Ethical Treatment of Animals (PETA) to promote its agenda which generally indicates that ADS is designed for and could be used for torture and other illegal functions.²³ The quote from David Hambling at the beginning of this section provides a slightly different example of a legitimate news source “getting it wrong” and perpetuating misinformation. Lastly, the ADS experience provides insights into how the enemy will attempt to exploit misinformation concerning directed energy weapons to undermine public support. There is also the potential that when the non-lethal system is employed in combat, enemy forces will produce burned and charred corpses which they will falsely claim are the result of ADS exposure. In short, the ADS example highlights the need for public debate to ensure that accurate facts regarding directed energy weapons are understood before they are employed.

Building Institutional Acceptance

I have used less than lethal weapons in the past. I would recommend their availability but I would only use the ones that still give a Marine the ability to go lethal and less than lethal. For example, M16 with 5.56 but his M203 can employ a stinger type round. You are not negating his inherent capability to self-defense by arming him this way.²⁴

Institutional bias may be defined as doing what you know. When considering military institutions, such biases are normally well entrenched, and for good reason. The lessons learned by a military force are paid for in blood and reinforced by successes and failures on the battlefield. As a result, the first step is to convince the military that change is required. In the case of directed energy weapons, the military institution must recognize the usefulness of the

²³ Sunshine Project Website ,www.sunshine-project.org, (29 March 2007)

²⁴ LtCol William Jurney, “Non-Kinetic Counterinsurgency Operations: A Study in Command” Marine Corps Center for Lessons Learned, 11 August 2006.

weapons themselves and that the mindset enabled by graduated force is crucial in the future warfighting environment.

Many of the same issues that were discussed regarding the battle for public perception also apply when winning the support of Marine commanders and their Marines . First and foremost, commanders desire that their Marines can accomplish assigned missions while possessing the ability to adequately defend themselves. In the debate concerning the role of non-lethal weapons in Operation IRAQI FREEDOM (OIF), commanders are hesitant to employ non-lethal weapons that could potentially leave their Marines vulnerable to attack. The quote from Lieutenant Colonel William Jurney, a Marine battalion commander in Iraq, at the beginning of this section addresses his concern that if a Marine can not easily and quickly escalate force, for example having to employ various different weapons to achieve variations of force, the Marine's inherent self-defense capability is negated. As previously mentioned, directed energy potentially provides exactly the type of adaptable force that Lieutenant Colonel Jurney alludes to when he describes a M-16 capable of firing both lethal and non-lethal rounds.

A second concern for commanders is operational law and specifically the constraints and restraints it places on commanders and their units. Marine leaders recognize their moral obligation to conduct operations inside the law, even while many threat elements engage in unlawful conduct, but commanders also understand that their lawful conduct is necessary to garner the public support required to be successful on the battlefield. It is therefore both morally correct and operationally useful to adhere to established legal frameworks. The concern over the legality of certain non-lethal weapons has caused commanders not to employ them for fear of committing a legal violation. For example, the negative treatment of TASER in the media, and the misperception of TASER's legality, has led commanders to opt for kinetic weapons despite

the fact that TASER has passed legal, treaty, and policy reviews by the Department of Defense.²⁵

As this example illustrates, commanders must clearly learn and understand the legal, treaty, and policy issues surrounding the employment of new weapons so the weapons can reach their full potential.²⁶

As directed energy weapons are developed, one legal question that must be addressed is when a Marine, who has effective non-lethal means available, may apply lethal force. As discussed earlier, the expectation of more precise force and less casualties in war is a growing trend in modern war. It therefore stands to reason that a Marine force armed with effective non-lethal means would receive a great deal of scrutiny if they were to use lethal force. The Marines would be questioned regarding their justification for their use of lethal force and potentially attacked in the media for killing the enemy. As absurd as such an idea seems, this topic must be thoroughly debated so as the trend toward a “bloodless” war continues, Marines can articulate and defend their position when called to do so. In this case, Marines must focus their debate on one of the central tenets of the law of armed conflict: proportionality.²⁷ Proportionality prohibits the use of any kind or degree of force that exceeds that needed to accomplish the military objective and compares the military advantage gained to the harm inflicted while

²⁵ Interview with Ms Susan LeVine (24 October 2006)

²⁶ It is important to note that during a legal, treaty, or policy review, identification of employment methods during the review process aids legal authorities in completing such reviews. In turn, the legal authorities can assist operators in understanding the complete range of employment capabilities. The better the communication between operators and lawyers early in the review process equates to a better outcome. Major Joshua Kastenburger, “Directed Energy Weapons: Legal and Policy Considerations,” Presentation to the University of Virginia Law School, 19-20 July 2006.

²⁷ Major Gregory G. Gillette, “Proportionality in the Law of War,” Marine Corps Gazette, September 2003, 61.

gaining this advantage.²⁸ As directed energy weapons are employed, Marines will be required to articulate, probably in the rules of engagement, when the military necessity justifies the potential harm. Finally, directed energy weapons, or new weapons in general, must be fully integrated with existing weapon systems so that these weapons are seen as integral tools, which are seamlessly employed, not unwieldy or foreign.²⁹

Conclusion

MCDP 1 *Warfighting* states, “War is both timeless and ever changing. While the basic nature of war is constant, the means and methods we use evolve continuously.”³⁰ Thus the Marine Corps capstone doctrinal publication emphasizes that the character of war will differ from conflict to conflict and the character of war will continue to evolve for the foreseeable future. Indications for the next 15-20 years are that U.S. forces may expect employment in numerous irregular and disruptive conflicts while also potentially engaging in traditional nation versus nation war. This range of possible employment, and the inherent uncertainty of war, will place a premium on adaptable forces capable of meeting the demands of the entire spectrum of conflict. In addition to adaptable forces, future war will require the use of adaptable force, and specifically continued restraints on the use of force will require minimal force to engender success. Developing leaders, or strategic corporals, who understand these concepts is the essential foundation needed to build a Marine Corps that can meet the demands of future warfare. But to fully enable the adaptable mind of the strategic corporal, he requires an equally

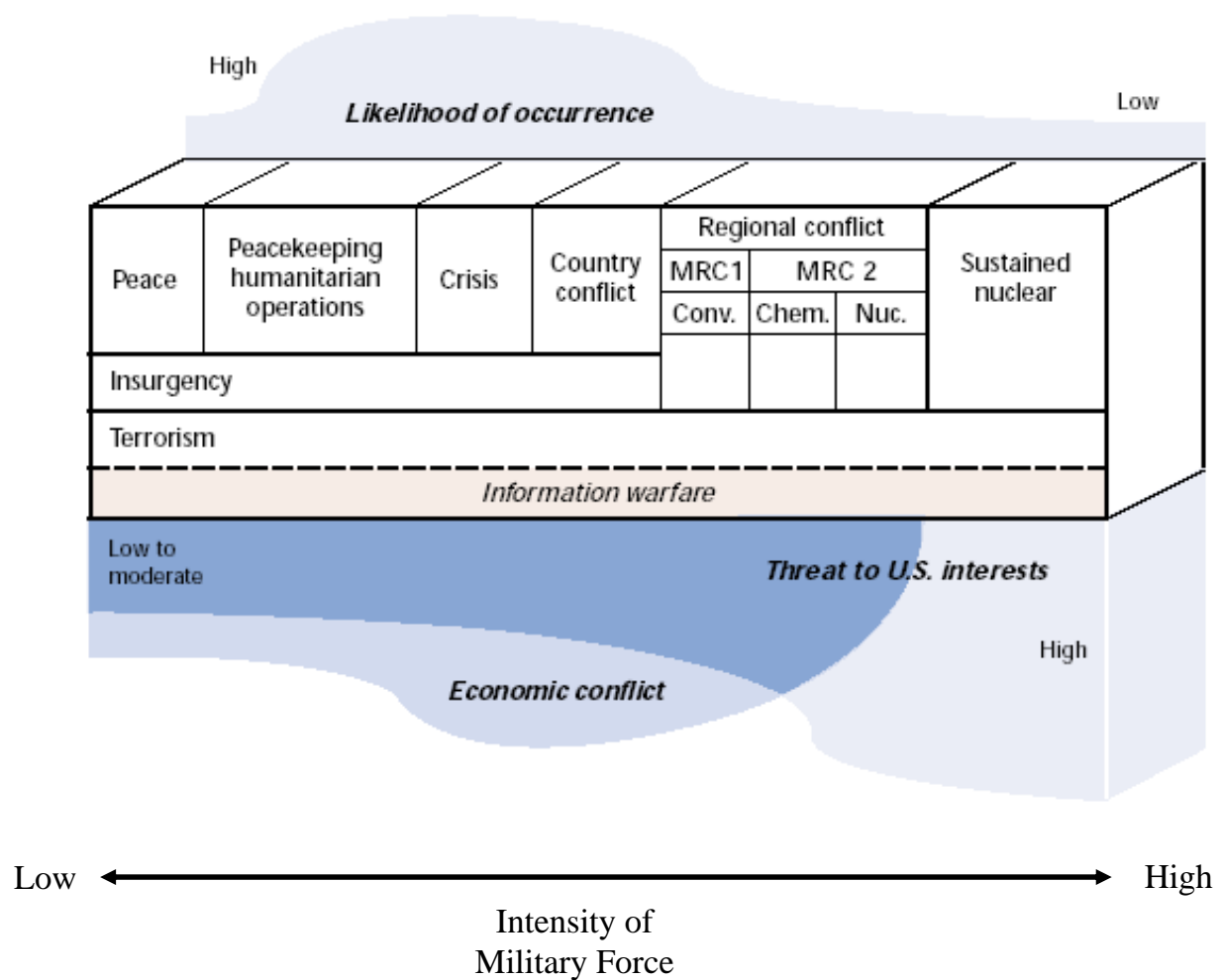
²⁸ Fessler, 88.

²⁹ Interview with Ms Susan LeVine (24 October 2006)

³⁰ U.S. Department of the Navy, MCDP 1 *Warfighting* (Washington, D.C.: U.S. Government Printing Office, 1997) 17.

adaptable tool. Directed energy weapons have the potential to be this adaptable tool. Directed energy weapons offer precise and “dialable” effects as well as the ability to change function to meet changing situations. While directed energy offers excellent future potential, in order to bring these weapons to full fruition it will be necessary to win the battle for public perception and build institutional acceptance within the Marine Corps. With these hurdles overcome, “Corporal Hernandez” will have the weapon he needs to confidently meet the challenges of the future.

Appendix A-Spectrum of Conflict



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